

Patent Claims

1. A method of producing a quartz glass crucible by providing a crucible base body at least in part with an inner layer in which the formation of cristobalite is induced by using a crystallization promoter, characterized in that said crystallization promoter and a reducing substance are introduced into said inner layer.
2. The method according to claim 1, characterized in that at least part of said crystallization promoter is introduced into said inner layer for forming said reducing substance at the same time.
3. The method according to claim 1 or 2, characterized in that those oxygen or nitrogen compounds that are present as solids up to a temperature of at least 1450°C are formed by oxidation of said reducing substance.
4. The method according to any one of the preceding claims, characterized in that the reducing action of said substance is adjusted by reducing conditions during preparation of said inner layer.
5. The method according to claim 4, characterized in that said inner layer is produced by arc melting using at least one graphite electrode.
6. The method according to any one of the preceding claims, characterized in that said reducing substance is formed from an initial substance which contains one or more of the elements titanium, tungsten, molybdenum, silicon, zirconium or a compound of said elements, preferably an alkaline-earth metal compound of said elements.

7. The method according to claim 6, characterized in that barium titanate or barium zirconate is used in a concentration between 0.003 mol % and 0.02 mol % in the spreading material as the initial substance for the reducing substance.
8. The method according to claim 7, characterized in that barium titanate or barium zirconate is used in a concentration between 0.005 mol % and 0.01 mol %.
9. The method according to claim 6, characterized in that titanium silicide and/or tungsten silicide is used in a concentration between 0.002 mol % and 0.5 mol % as the reducing substance.
10. The method according to claim 9, characterized in that titanium silicide or tungsten silicide is used in a concentration between 0.004 mol % and 0.4 mol %.
11. The method of Claim 1, characterized in that oxides or oxygen compounds, preferably ferrates, wolframates, molybates, nickelates, vandates, niobates, tantalates in their not completely oxidized form are used as the reducing substance.
12. The method according to any one of the preceding claims of the method, characterized in that said inner layer is produced by means of SiO_2 grains which contain said reducing substance or a feed material for forming said reducing substance in the form of a dopant.

13. The method according to any one of the preceding claims, characterized in that a plurality of reducing substances of a different chemical composition are introduced into said inner layer at the same time.
14. The method according to any one of the preceding claims, characterized in that a concentration gradient of said reducing substance is set in said inner layer.
15. The method according to any one of the preceding claims, characterized in that Al_2O_3 is used in a concentration between 0.15 and 0.5 mol %, preferably between 0.2 and 0.3 mol %, as said crystallization promoter.